

CHROMATICISM IN MEDIEVAL AND POST-MEDIEVAL BYZANTINE CHANT.

A NEW APPROACH TO AN OLD PROBLEM.

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When we speak of "Byzantine Chant" (or "Byzantine music"), we are primarily speaking of the vocal, non-accompanied music of the Greek-Orthodox Church in the Middle Ages. It is the chant of the Byzantine Empire. Politically speaking, this empire ceased to exist in A.D.1453, when the Turks captured its metropolis. But the Church continued her existence, as a cultural factor of great importance, during the centuries in which the Balkans were under the Turkish yoke. Notwithstanding the curious double role of the upper clergy in this period - most clearly to be seen in connection with the Phanariotes - it remains a fact that the Orthodox Church and her traditions were of capital importance for preserving the integrity of the Balkan peoples in these difficult centuries.

My point in drawing your attention to this fact, so well remembered in the Balkans, is that I want to stress that the year of 1453 has little or no importance when we speak of the history and development of Byzantine Chant; the singing of the Church continued in its organic development - and it has been doing so in an unbroken tradition until the present day. The modern, "Neo-byzantine" chant is the last link of a long chain, reaching backwards in time - at least to the early Middle Ages.

For more than one thousand years, the oral transmission of Byzantine Chant has been supported by written sources, the musical manuscripts - liturgical books in which the flow of the melodies was indicated by some kind of musical notation. From the 10th century onwards such manuscripts have been preserved, enabling us to understand the interplay between oral and written tradition. At first, the notes - or "neumes" as we usually say - were imprecise hints to show how the melody was to be sung. The neumes were only a kind of mnemonic device, to serve as reminders to those who knew the melodies in advance. This kind of musical notation evidently presupposes a solid oral tradition. Around the middle of the 12th century an important reform of notation took

place: The old neumes were now put together in a highly ingenious way, and it now became possible to express the flow of the melodies so precisely that the singers could sing directly from the written page - provided, of course, that they knew the conventions of the music. With minor modifications this Middle Byzantine musical notation was used until the first decades of the 19th century. It was then revised and reformed again, and obtained the shape in which it has been used until to-day. The musical notation has thus developed towards more and more precision. More and more details have been taken down in writing; but even to-day many details are part of an oral tradition, and the habits and predilections of the choirmaster or Psalter still play a considerable role. The printed neumes are still only a starting-point, a basis for what is actually done in the liturgical act.

With the "Reform of the Three Teachers" in the first decades of the 19th century the musical notation got rid of two major imperfections, characteristic for the older neumes. For one thing, the "Old System" was not sufficiently clear as far as concerns the indication of rhythm. Secondly, the Early, Middle and Late Byzantine notations did not indicate the exact size of intervals - at least not directly. Now, since the size of intervals is a central problem for the present paper, it is necessary to give a short briefing on this aspect of the Byzantine neumatic script. To make myself clear, I shall here compare the Byzantine neumes with Western staff notation on the pentagram - the ordinary notation for piano-players etc.

Any person who is familiar with our Western way of musical writing, can see directly the pitch of a tone, from the way in which the note is placed on or between the five lines of the pentagram. The pitch of the lines is indicated by means of a so-called "key", repeated at the beginning of each system of five lines. Changes in the size of intervals will be indicated by the appropriate accidentals, "flats" and "sharps". This is the Western pentagram notation in its barest outlines; Western notation is a pitch notation. The Byzantines used a quite different method to express the movements of their melodies: They defined each tone in its relation to the immediately preceding tone. By means of combinations of the appropriate neumes, this "relative pitch"

was expressed as so-and-so-many "steps" (ὀκταβὰ) up or down, counting the number of steps from the pitch of the tone which had just been sung. As you will understand from this description, a Byzantine melody appears in the musical manuscripts as a chain of intervals; Byzantine notation is an interval notation.

Now, the neumes are able to express the number of steps for each interval of the melody. But they have nothing to say about the size of each step. The neumes do not reveal whether a "step" is a whole tone, or a half tone, or a step which is greater than our whole tone or smaller than the half-tone, or whatever. No doubt, this incertitude is much more painfully felt by the modern scholar than it was a problem to the medieval singer. Familiar, as he must have been, with the scales of his eight Church Modes, the singer was sufficiently guided by the indication of mode (the μαρτυρία or ῥήγμα) which was written in front of each musical piece, and which might also be found at resting points within the melodies. From such modal indications the singer was constantly reminded of his actual position within the modal system. And do not forget the enormous difference between a medieval singer and a modern scholar: The modern student of Medieval Byzantine Chant has to reason about phenomena which were obvious and unproblematic for those who lived within the tradition!

This lack of explicitness has led to a strong disagreement between scholars in their interpretation of the medieval intervals. With some simplification the two main positions can be described as follows:

The Greek "traditionalists", with their firm belief in the tenacity of singing habits, are absolutely sure that their complicated system of diatonic, chromatic, and enharmonic scales is the unchanged inheritance from a very remote past. Part of this inheritance is a great number of more or less perceptible sizes of intervals, ranging from microtones to oversized tones which are considerably larger than a Western whole tone. Western scholars, on the other hand, have based their much more simple interpretation of medieval Byzantine Chant on the assumption that the eight ecclesiastical modes of the East had the same intervals as their namesakes in the Gregorian West, and a similar modal structure. Consequently, the entire Byzantine Chant was considered to

be diatonic, with scales which consisted of whole tones and half tones, only. The neumes could therefore be correctly transcribed into the C-Major scale (or, if you prefer a different way of expression: the melodies could be rendered on the white keyboard of a piano) with a few accidentals here and there. I am fully aware that this is a simplification; but for my actual concern there seems to be no reason to go further. Another assumption of Western musicologists concerned the complicated state of affairs which is observed in Neobyzantine musical theory and practice: the many scales and intervals which are used now-a-days were taken to reflect a postmedieval development, whereby the Greek Psaltai tried to please their Turkish overlords by introducing or imitating features of non-Greek music. The non-diatonic Neobyzantine scales, in short, were due to some kind of "Oriental influence" - whereas the medieval Byzantine Chant, according to these Western scholars, was strictly diatonic and had quite simple intervals - like her Gregorian sister in the Latin West.

I shall not dwell on the scholarly combat which has been fought on the battleground of intervals during the years. In my opinion both camps had good reasons for their views on the nature of the medieval intervals. Both views, however, cannot be upheld at the same time. This is why I am still searching for conclusive evidence, to verify one of the two positions and to falsify the other. In doing this, I try to keep in mind the extremely sound advice of Gheorghe Ciobanu: *Il est nécessaire d'abord nos recherches sans idées preconçues* (Jahrbuch der Österreichischen Byzantinistik 32/7, Wien 1982, p.36).

My own investigations in the field have been concentrated on the Deuterios modes - the Second Authentic, the Second Plagal, and its by-form, the Nenano. Until now I have disregarded the so-called "Legetos", which has problems of its own, and have been interested, only, in the other three. According to modern Greek theory and practice these three Deuterios modes use chromatic scales. Let us now take an unbiassed look at the same modes as they are to be found in medieval Byzantine manuscripts.

We shall begin with a point on which East and West agree: It concerns the relative position of the eight Church modes, as described in the small manuals from the 14th century onwards, the

so-called *Προπαιδεῖαι* or *Παραδιδυαί*. According to these sources the modes are placed in such a way that "Deuterios is situated one step above Protos, Tritos one step above Deuterios, etc.". Comparisons with the data of readable musical manuscripts (from the 12th century onwards) show that this description reflects the relative position of the eight "Echemata", the small introductory formulas which the Domestikoi intoned before the actual singing of a piece. Each of the eight modes has its own standard Echema, a small melody sung to meaningless syllables - *Ananeanes*, *Neagie*, etc. The starting notes of the eight standard intonations are placed on the steps of a diatonic octave from D, with the four plagal intonations beginning from D, E, F, and G, followed by the authentic modes from a, b, c, and d. We can reduce this description further, by operating with tetrachords instead of octaves: On the tetrachord, the Protos and its Plagal are to be found on the first, lowest, step, followed by the Deuterios modes on the second, the Tritos modes on the third, and the Tetartos modes on the fourth step. This corresponds exactly to the position of the four *maneriae* in Western Chant. Concerning the Byzantine Deuterios modes, including the *Nenano*, the data of the medieval manuscripts show that they all have their finales on E, like the Gregorian Modes III and IV. We have here one of Tillyard's main reasons for assuming a close parallel between the two kinds of chant, the Eastern and the Western, and it is easy to see why he considered this parallellism to be valid also as to the structure of their scales.

The correspondence between Gregorian and Byzantine modes is not only to be seen in their position, but also in quite a number of melodic elements which occur in identical shape and on the same pitch in both traditions. Example 1 consists of some quotations from melodies in the Second Authentic Mode. The Latin ones are taken from the oldest readable Western manuscript, the famous Montpellier codex (H 159 Montpellier. Tonary of St. Bénigne of Dijon. Transcribed and annotated by Finn Egeland Hansen. Copenhagen 1974), the Greek examples come from a Sinai manuscript from the 14th century - but I might have chosen any other source as well, back to the 12th century. The example shows how a small melodic configuration (EF D G) occurs at transitions from one line to the

next. On the strength of such parallels we can well understand why Western scholars have believed that the Byzantine Deuterios modes were diatonic.

Most of our Greek colleagues, living in a tradition where various chromatic scales occur in connection with melodies of the Deuterios modes, have relived - quite understandably - on the stability of the tradition, and have therefore strongly opposed the Western interpretation. To them there is no doubt that the medieval Deuterios modes were chromatic, used chromatic scales and intervals. Now, the refined and complicated intervals of contemporary Greek ecclesiastical music - including the chromaticism of the Deuterios modes - is not only a feature of oral tradition. If it were, we would find ourselves exclusively in the field of ethnomusicology, and our discussion would deal with the tenacity and reliability of an oral tradition. But, as it is well known, there exists one important written source: the two books by Chrysanthos, which we must consider to be the fundament for the latest reform of Greek chant. The most important of these books is the *Θεωρητικὸν Μέγα* from 1832; but already in 1821 he published a small introduction to the New System, the *Εἰσαγωγή*. In both books we find detailed descriptions of scales and sizes of intervals. These happen to be the earliest accessible descriptions of the phenomena with which we are dealing. Therefore, the importance of Chrysanthos's diagrams for our actual purpose is beyond any doubt. But we need to keep two things in mind, if we are to make an intelligent use of this material. For one thing, it is irrelevant to us what has happened to Greek chant since the days of Chrysanthos. The New System, introduced by Chrysanthos and his two colleagues, was generally accepted, and soon became part of the training of all singers. Consequently, if we observe what singers are actually doing now-a-days - if, for instance, we make some acoustic measurements - this can only tell us about the reception and influence of Chrysanthine theory; maybe also about secondary modifications of it. But we have no reason to believe, nor any ways to prove, that a knowledge of the pre-Chrysanthine scales and intervals survived the overwhelming influence of Chrysanthos and his colleagues for more than a couple of generations. Secondly, we have no reason whatsoever to believe that Chrysan-

thos in any radical way changed the fundamental features of contemporary chant. His aim was to save the tradition, to make the writing-down of the melodies more precise and the singing easier to learn; his aim was certainly not to introduce innovations. It may very well be that he has expressed himself too precisely when defining the different genres of tetrachords and scales and intervals. Personally I suspect that he was influenced too much by the Ancient Greek texts of musical theory - an understandable feature in the early years of the revived Greek nation. But I am deeply convinced that his descriptions must have covered the sounding reality of contemporary chant adequately enough. After all, they were accepted by a generation of singers who had been brought up and trained immediately before the reform. He cannot have been totally wrong!

The Eisagoge from 1821 contains a number of scale diagrams. I have "translated" the five most important of these in Example 2. Their basic idea - which Chrysanthos seems to have taken over from Aristoxenos - is to divide the octave into a great number of small units of equal size. These units are termed μόρια (or τμήματα or κόμματα). Each interval can now be described as containing "so-and-so-many moria". In 1821, Chrysanthos divided his normal octave into 68 moria.

Now, since I want to carry on a comparison between the Chrysanthine scales of Ex.2 and a Western tempered scale, I have added one diagram of my own, the diagram of a tempered C-Major scale, with its whole and half tones expressed in Chrysanthine moria. With 68 moria to the octave, this gives $11 \frac{1}{3}$ moria for each of the five whole tones, and $5 \frac{2}{3}$ moria for each of the two half tones of the octave. If we compare these moria figures with those which Chrysanthos indicates for his "diatonic octave" (uppermost diagram), we notice that his intervals are of three different sizes: A whole tone which is $\frac{2}{3}$ morion larger than ours (12 moria, where our whole tone has $11 \frac{1}{3}$); a small interval which is slightly larger than our half-tone (7 against $5 \frac{2}{3}$); and in between there is a medium-sized interval of 9 moria. If we now measure from the bottom of the two scales, from the C, we find Chrysanthos's D to be slightly higher than ours - but only $\frac{2}{3}$ morion. Even a trained ear can not hear any difference. His E is

21 moria higher than the low C, whereas ours is to be found in a distance of $22 \frac{2}{3}$. This makes his E $1 \frac{2}{3}$ morion lower than ours - corresponding to approximately $\frac{1}{8}$ of a tempered whole tone.

If we continued in a similar way through all steps of these two diatonic scales, we would reach the conclusion that a melody in the Greek diatonic diapason scale could be transcribed from Chrysanthine notation into our pentagram without any use of accidentals. The result would be acceptable, I think, even though a fine Greek ear would perceive our tones E and b-natural as being sung a little higher than the Greek would do himself. I have denoted this feature by means of arrows on my diagram.

The other diagrams all contain intervals which need to be provided with accidentals in our transcriptions. And once again, our rendering would be an approximation, only. But beyond any doubt it would be considerable closer to the original than any transcription made without accidentals.

According to the diagrams and descriptions in Chrysanthos's two books, the Deuterios modes which he had in mind made use of two different chromatic scales: The chromatic diapason, to be transcribed with four accidentals (E-flat, F-sharp, b-flat, and c-sharp). The chromatic diphonia, with two accidentals (D-flat and a-flat). The obvious conclusion to be drawn from these facts can only be that such scales did exist in the previous period, before the New System was introduced. Chrysanthos cannot possibly have invented these scales by himself. For if these chromatic scales had been an innovation of his own, his attempt to introduce such radical changes of tonality would have met a strong protest from his contemporaries - those who had been trained according to the Old System. From this way of reasoning it thus follows that chromatic modes or scales did exist at the end of the 18th and the beginning of the 19th century. I am sure that all scholars will agree on this point. But by this agreement we admit at the same time that an oral tradition combined with the neumes of the Older Notation could convey a chromaticism which could not be seen directly from the neumes themselves.

The neumatic script which was used at the beginning of the 19th century, just before the Chrysanthine Reform, had by then made good service through a long span of centuries - more than

650 years, in fact. New melodies had been composed in these centuries, and new styles had been introduced. But some genres lived on, with minor changes only. Let me mention one example, picked out at random: From an Athens manuscript of the year 1787 - only one generation before the Reform of the Three Teachers - I have taken a Sticheron, Second Authentic Mode, and compared its melody with the "classical" setting, as we know it from all Sticheraria from the Byzantine period. There are, of course, a number of variations in this late manuscript - but none which goes beyond what we might find in the older sources. Now, in 1787 this melody - according to our line of reasoning - must have been chromatically sung, though this cannot be seen from the manuscript itself. But what are we then to say about the same musical signs, the same melodic phrases, as found in manuscripts from the 14th century or earlier? According to the Western interpretation, the old melody had diatonic intervals. But then we should have to conclude that the musical formulas and a good many details had been kept intact, but that the sounds of this melody - its very atmosphere - had been completely altered at some date before the end of the 18th century. I find this rather unlikely.

Of course, there is no proof in a case like this. And if I had no better material to offer than general considerations of a hypothetical character, I should certainly not have felt it necessary to reopen a discussion on "Chromaticism in Medieval Byzantine Chant". But it so happens that in the last years I have more clearly than before seen traces of chromaticism in the older manuscripts - in fact as far back as our written sources reach, i.e. the early 10th century. I hasten to add, however, that my observations are still far from being conclusive; it certainly would be wrong to claim that I have reached a final solution of this complicated and difficult problem. What I have found is rather a new approach, a new method of investigation.

My observations are concentrated on the occurrence of some modal indications in the medieval manuscripts, the Echemata or intonations which were sung by the choirmaster to introduce the singing of a piece. Each of the eight Church Modes has its own characteristic standard intonation. More often, however, the musical manuscripts indicate the mode of the melody and the starting

point of the chain of intervals in a different way, by means of a so-called *μαρτυρία*, a modal signature placed at the beginning of the hymn. As it can be seen from Example 3 (fol. 138v of the Vienna Sticherarion published as vol. I of *Monumenta Musicae Byzantinae*), such modal signatures are not only found at the beginning of hymns, but also at resting places within the melodies. Ex.3 contains two Stichera for the feast of St. George (April 23). The first of these (*Νευτέρω δίκαια*) is in Deuterios, with the modal signature γ^{\sim} . For the second Sticheron (*Πάντα τὰ ἔθνη*, in Tetartos) the modal indication is an intonation, sung to the echematic syllables *αῦα*. Now, as first demonstrated by Oliver Strunk in a couple of articles from 1942 and 1945, the signatures are to be understood as short-hand symbols for the corresponding intonations. The two modal indications are thus to be understood from the following equations:

$$\text{Deuterios: } \gamma^{\sim} = \sqrt[6]{\alpha} \alpha \sqrt[6]{\alpha}$$

$$\text{Tetartos: } \alpha \alpha \alpha \alpha \alpha \alpha = \delta^{\sim}$$

In their "theoretical", untransposed position these Echemata of the Second and Fourth Authentic Modes start from b-natural and d, respectively, as already mentioned.

At the beginning of hymns, signatures and intonations will always be found in their theoretical pitch. But inside the melodies the medial signatures will often occur in transpositions - normally to the fourth, the fifth, or the octave. The same transpositions will occur, of course, also in the musical context. Now, in the 1950's I found evidence to show that the medial signatures, too, were to be understood as graphical symbols for intonations which could be sung as intercalated embellishments or as modulation signals or other aids to the performance. Shortly afterwards, my compatriot Christian Thodberg observed - in specific contexts of *Plagios Tetartos* melodies - a number of cases where the Tetartos signature δ^{\sim} was found a fourth lower than its "normal" pitch - on a instead of on d. The corresponding Tetartos intonation would still sound in its usual way, i.e. with the same intervals, but the pitch would now be a G F-sharp E D a,

with F-sharp, not F-natural. Thodberg now claimed that this F-sharp would occur, as well, in the immediate context - either in the preceding formulas or in the following, or in both; for an intonation with F-sharp would be extremely strange in a context of F-naturals. Thodberg's hypothesis was supported by occurrences of other medial signatures with similar implications. The most common of these was the "Nana" on G. For we know that the Nana properly belongs to the pitch of c - i.e. with a small interval below it, the b-natural - and the inevitable conclusion for a Nana on G is therefore that it has an F-sharp below, in other words: again a reflection of an F-sharp in the musical context.

Let me resume: Strunk showed that the signatures at hymn beginnings were symbols for the corresponding intonations. My idea was it that the same explanation was valid also for signatures occurring inside the melodies: the medial signatures represent intonations which may be intercalated for one reason or another. Thodberg used transposed medial signatures in Plagios Tetartos melodies as clues to some hitherto unobserved F-sharps in the musical context. In other words: From medial signatures which occur in transpositions we can learn about the intervals of their melodic context.

We shall now return to the Tetartos melody of Ex.3; it is transcribed in Example 4, from the Vienna manuscript. I have had a look at some sixty versions of this melody, in manuscripts from 12th to 15th cent. In a few of these sources, some medial signatures indicate a c-sharp near the end of the third system. Thus, in the oldest of them, Sinai 1218 from A.D. 1177, we find a Tetartos signature on e (before $\kappa\alpha\iota$) and a Nana on the d at line's end. According to our general hypothesis, such signatures ought to indicate c-sharp in the surroundings; for the Tetartos Echema which corresponds to the signature δ^{\sim} on e must have the intervals e d c-sharp b-natural a e, and being found on d the Nana with its half-tone step below has the same implication of a c-sharp. Much more important, however, for our actual concern is the occurrence of Deuterios signatures in no less than 11 manuscripts. For these signatures represent an intonation which in its basic position is taken to mean b-natural a G, and which is here transposed one fourth upwards, to e d c. Now, an interca-

lated e d c would fit very badly to a context with c-sharp. In other words, we are led to infer that the intonation, too, contained a c-sharp, and should correctly be rendered e d c-sharp. Hence, in the "theoretical" position a fourth lower, the corresponding notes would be b-natural a G-sharp - not b-natural a G as usually believed. Inserting, now, this hypothetically acquired G-sharp in the progression from the finalis of Deuterios (E) to the b-natural of its intonation's starting note, we get E F G-sharp a b, a progression which contains exactly the same arrangement of intervals as the Neobyzantine Chromatic Diapason Scale from D (D E-flat F-sharp G a b-flat c-sharp d)!

On the basis of these observations I conclude that the Tetartos melody which we are dealing with contains a partial modulation, a chromatic passage which affects the words καὶ ἐν τῷ κατελθόν - whereupon the melody returns to the original diatonic mode of the Sticheron. This interpretation explains why I have inserted a couple of b-flats in my transcription of this passage, b-flat corresponding to the untransposed F-natural of the chromatic progression E F G-sharp a.

We have now in some details had a look at one example which seems to indicate that the postmedieval chromatic progression was used already in the 12th century, the date of the manuscript Sinai 1218. Of course, I need more observations, more evidence than one isolated example, to convince myself and my Western colleagues that the Deuterios modes in medieval Byzantine Chant used chromatic scales as they do now-a-days. But at any rate my example illustrates a method which one ought to apply to a great number of medieval diatonic melodies which contain partial modulations into modes that according to Chrysanthos's descriptions are non-diatonic.

I turn now to my final example (Example 5), the seventh of the famous Doxastika Eothina, written and composed by the Byzantine Emperor Leo VI, the Wise (+ 912). My transcription is made from Sinai 1218. The mode of Eothinon VII is the so-called Barys, with finalis on F and mostly with b-flat (according to Chrysanthos, Tillyard, Thodberg, and others). The melody is transcribed by Tillyard, from other manuscripts, in MMB Transcripta V, pp. 73-75 (The hymns of the Octoechus, Part II, Copenhagen 1949); for

practical reasons I retain Tillyard's numbering of lines, though I am not entirely satisfied with it.

The modal character of Barys is clearly seen in lines 1-8, cf. e.g. the cadential formula of lines 3, 5, 7, and 8, which is typical for this mode. But in its concluding section (lines 9-10) we observe a complicated series of modulations and transcriptions, and a considerable number of flats and sharps are needed to obtain a correct rendering of the melody. It is my aim, now, to take my readers through a detailed reasoning about every flat and every sharp of this passage, thereby illustrating a slightly different method, in which the indications from transposed medial signatures find support in an analysis of the melodic elements.

The obvious starting point for our reasoning is the end of line 10 (σὲ τὸν ζωοδότην Χριστόν) where we once more find the cadential formula of lines 3, 5, 7, and 8. But now it is transposed a fourth upwards. Consequently, in order to retain the same intervals as in line 8 etc, b and e must be flattened (\neq untransposed F-natural and b-flat).

On the last syllable of line 9 we find a well-known cadential enlargement, again from Barys. In its normal position it has the intervals F E F G, as in line 5. So, once more, we have to do with a fourth-displacement, and we need to transcribe with b-flat.

The ending of line 9 (καὶ ἡμεῖς πιστεύσαντες) is sung to a cadence which we find in the Deuterios modes. Supposing - at least as a working hypothesis, on the strength of observations like those put forward in the present paper - that these modes were chromatic already in the early 10th century, we shall add the appropriate accidentals. This cadential formula, too, is transposed a fourth upwards; the chromatic interval (F-natural G-sharp) must therefore give b-flat c-sharp. But notice that the enlargement at the end of line 9 belongs to Barys, not to the chromatic modes. Evidently, then, it is here used to mark a return to the main mode of the melody, the Barys. This is why its last note must be a c-natural, not the c-sharp of the fourth-transposed Deuterios.

With the beginning of line 10 (ἀνυμνοῦμεν) we are thus back in Barys. We have already seen that the surrounding formulas oc-

curred in transposition (a fourth upwards), and therefore deduce that also the beginning of line 10 is similarly transposed. With c corresponding to G (below which there is a whole tone interval, G F) we have to create a similar situation a fourth higher, understanding the b as a b-flat. This b-flat, however, is a transposed F, not the b-flat of the untransposed Barys!

Before lines 8 and 9, Deuterios signatures are to be found in Sinai 1218, both times b^{\flat} . This signature, as we have already seen, is normally found on b-natural, and - according to the hypothesis which we are investigating - there is a small third below this b-natural (the G-sharp of the Echema!) and a semitone above it. But in our present context, the signature is placed on a, not on its usual b-natural. Consequently, the semitone above it is here to be rendered as b-flat, and the small third below the a as F-sharp.

So far so good! According to this medial signature, line 8 and the beginning of line 9 are transposed from b-natural to a, i.e. a major second downwards. Now, as we saw, lines 9b to 10 are transposed one fourth upwards. What, then, are we to say about $\kappa\alpha\iota\ \delta\iota'\delta\nu$ in line 9? One second down? Or one fourth up? There is no medial signature in Sinai 1218 - but in one of my Palaeobyzantine manuscripts (Patmos 218) there are signatures both before $\mu\epsilon\theta'$ and before $\kappa\alpha\iota$ in line 9, respectively β and $\pi\gamma$. The latter signature, for the Second Plagal Mode, is normally placed on the low E. Evidently, then, we must understand the a on $\kappa\alpha\iota$ as a fourth transposition upwards. And, consequently, we must add the chromatic accidentals b-flat and c-sharp (\neq untransposed F-natural and G-sharp).

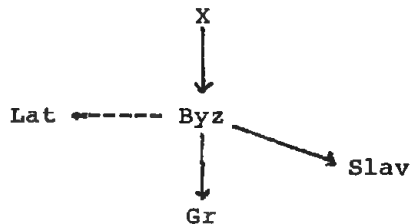
We have now reached the end of our reasoning. Modulations and transpositions of melodic formulas have here been used as material for an investigation of intervals. It would lead the reader off the track, if I went on with a lengthy demonstration of how these elements of style serve as artistic means to stress the structure of the texts and their line of thought. The deep idea of Leo's - to express our dependency on the eyewitnessing disciples and at the same time to let us join them, as it were, at the empty tomb - is marvellously rendered by the two Thematismoi ornaments which occur at such a short distance, and at different

itches. And in my other example (Example 4), the word-painting effect of the chromatic passage reminds us of phenomena which are extremely common in later and contemporary, Neobyzantine melodies.

CONCLUSIONS:

I am fully aware that the hypothesis which I have now put forward, rests on a basis which is extremely narrow. One needs to investigate more melodies, in a much larger number of manuscripts. But I should like to point out what will happen, if I succeed to convince my Western colleagues that in Byzantine Chant something similar to the Neobyzantine chromatic scales was used as far back as our written sources take us, i.e. at least to ab. the year 900:

Let us remember that the Western, diatonic, interpretation of the Byzantine church modes used observations on parallels between Byzantine, Old Slavonic, and Gregorian music. Here is a simplified model:



As long as the chromatic character of the Deuterios modes could be observed only in Gr, there were no problems. The old tradition (Byz) would be diatonic - as it is in Lat and Slav - and the chromaticism of Gr could be viewed as a postmedieval innovation within the specific Greek tradition. But now, when it seems likely that already Byz was chromatic, we are facing a new set of problems. For the observations concerning the parallels between Byz, Lat, and Slav are still valid! How can it be, then, that the chromatic modes of Byz have become diatonic both in the East (Slav) and the West (Lat)? At present, I can think of two explanations. Needless to point out that they are both highly hypothetical. My first explanation is as follows: Maybe the parallels

between Lat and Byz (Example 1) show that the Gregorian modes originally were as chromatic as their Byzantine counterparts, and that their diatonic shape was a secondary phenomenon, for instance connected with the invention of the line system in the 11th century. Another possible explanation: Both the Slavonic and the Gregorian chant developed in areas where populations coming from the North met the church music of the Eastern Mediterranean world. Now, we know from elsewhere that the recipient may influence a music which is forced upon him from outside. I am here referring to the so-called "German dialect" within the Gregorian chant. Would it be acceptable to imagine a "Mediterranean chromaticism", which neither the Slavs nor the Franks were willing - or able - to accept, but which (of course) survived in its original geographical area, until the present day?

These are admittedly great consequences drawn from a small observation. But, as the French saying goes, *le bon Dieu réside dans le détail* - and we possess an ample supply of relevant details to be studied before the problems of the intervals of medieval Byzantine Chant are solved and settled.

Postscript:

Since 1983 I have described my ideas about chromaticism in medieval Byzantine chant at several occasions, guestlecturing or in connections with symposia and congresses. The following contributions will be published:

- 1984: Bucharest, Union of Composers. (The present paper is a revised version of this; a Roumanian translation of the original lecture will appear in *Studii de Muzicologie* XX, 1986).
- 1985: Delphi, Trilateral Musical Meeting "Greece, Islam, Medieval mediterranean Europe; arranged by the European Cultural Center of Delphi. (To be published in the Acts of the meeting).
- Wien, Egon Wellesz Symposion. (Will be published in the Acts of the symposion).

1986: Washington, International Byzantine Congress. (To be published in CIMAGL).

I have deliberately refrained from giving any bibliographical notes and references; a full bibliography would be far to long, and a short one would be unfair to the colleagues not mentioned therein.

Example 1 (EF D G transitions in Introits and Communions from the Montpellier codex and in Stichera from the Sticheraion Sinai gr. 1230, transcr. Amargianakis, CIMAGL 23)

Montp. melody nr. 490: al--le-----lu-----ia. nunc au---tem.....
 DE EGFE GFE EGFF FE EF DGF EEF

Sept. nr. 3, 3-4: αν-ε-ἐλ-χολ--α--οτολ' πε--λεις γαρ σο-φλ-α του θε-ου.....
 EF G bG aG FE E FG FG EF D G ca b a G aF G

Montp. nr. 479: di-----cit do-mi-----nus. de qua-cum---que tri-bu-la---ci---o-----ne.....
 EF G GaGF GaG E EGFF EF D G aG ab_b a ab_a G Gacb cca abaGa aG

Sept. nr. 35, 1-2: ΕΙ και θελ-ω βου-λην---μα-----τι πε---ρι---φα--νεις.....
 D EF a a bG a G FE EF D G G a b dcb

Montp. nr. 491: Vi-----di-----mus stel-lam e-ius in o---ri-en--te.....
 EFG aGa GFG EFD Gc c c a a Gab c ab E

Sept. nr. 3, 8-9: κω---σιμω επ--ε---δη---μη-----οας' ζη---των ο ε--καλ-λυ-νας ηλα-σιμα...
 GF EF G bG aG FE EFD G ab b b bc a ba G G

Example 2 (Scales based on Chrysanthos's diagrams from 1821):

12 9 7 12 12 9 7

Diatonic Diapason (68 moria)

C D E F G A B C
↓ ↓

12 9 7 12 9 7 12

Diatonic Triphonia (58 moria)

C D E F G A B^b C
↓ ↓

7 18 3 2 7 18 3

Chromatic Diapason (58 moria)

D^b E^b F[#] G A B^b C[#] C
↑ ↑ ↑ ↑

7 12 7 12 7 12 7

Chromatic Diphonia (64 moria)

C D^b E F G A^b B^b C
↑ ↑ ↓ ↑ ↓ ↓

12 13 3 12 12 5 11

Enharmonic (58 moria)

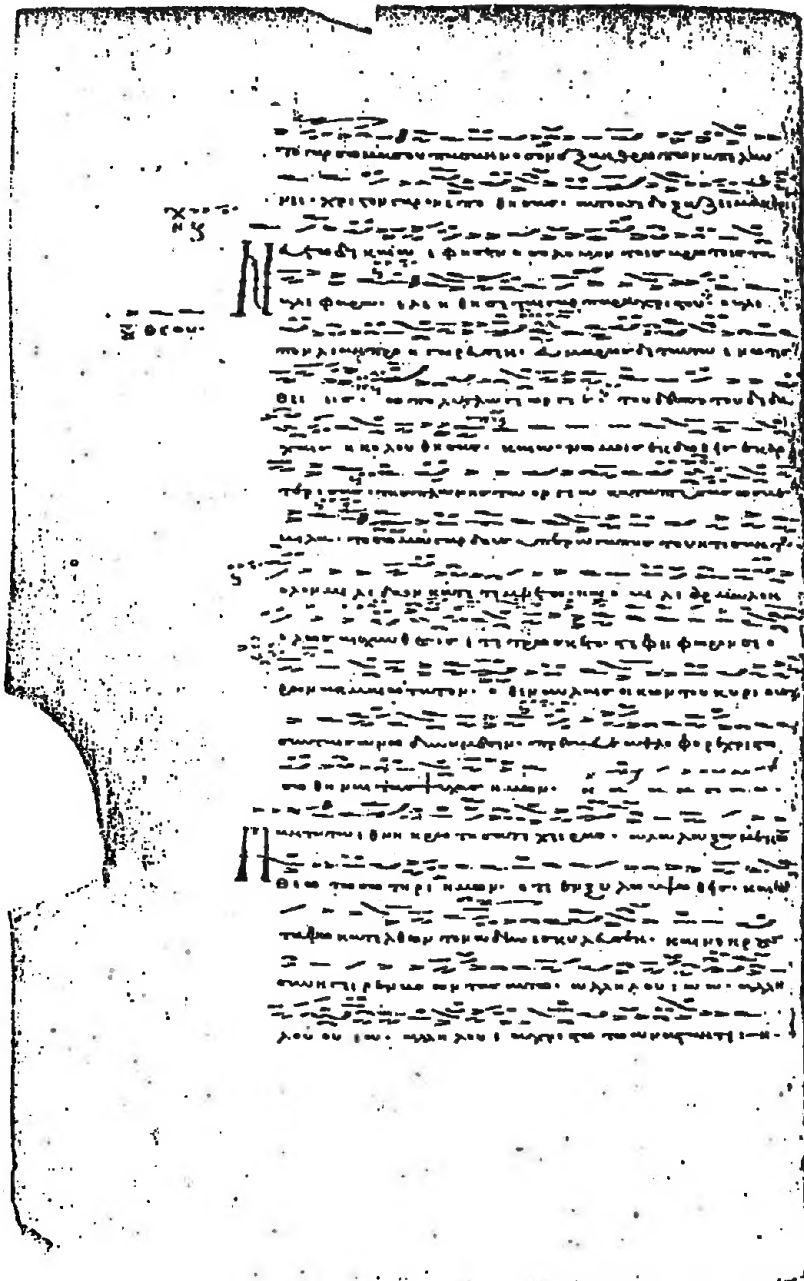
C D E F G A B^b C
↑

1 1/3 1 1/4 5/3 1 1/3 1 1/4 5/3

C-major scale (68 moria)

C D E F G A B C

Example 3 (Wien, theol. gr. 181, 138v = MMB Main Series vol. I)



Example 4 (Πάντα τὰ ἔθνη, transcribed from Wien, theol. gr. 181, 138v)

α-----γι-----α Πάντα τὰ ἔθνη· κοσμήσατε χεῖρας·
 ἀλαλάξαμεν τῷ θεῷ· τῷ σωτηρίῳ ἡμῶν·
 ὁτι ἐν εὐλογίᾳ ὑμνήσας καὶ ἰσχυρὰ τὰ ἔθνη κατελθὼν
 τὸν ἁγίου πνεύματος·
 καὶ νεκροὺς συνήγειρεν βοῶντας αὐτῷ·
 ἀλληλοῦς αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν
 χοροὶ σιτίων αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν αὐτῶν

Example 5 (Oothinon VII, transcribed from Sinai 1218, A.D. 1177)

1 Ἰ-δου σκο-τει-α και πρω-ι.² και τι προς το μνη-μει-ον

Μα-ρι-α ε-στη-κας.³ πο-λυ σκο-τος ε-χου-σα ταις φρε-σιν.

4 υ-υ-υ-υ-υ ου-ου-ου που τε-θα-πται ζη-τεις ο Ι-η-σους.

5 αλλ ο-ρα τους συν-τρε-χον-τας μα-θη-τας.

6 πως ταις ο-δο-νι-οι-οις και τω σου-δα-ρι-ω.

7 την α-να-στα-σιν ε-τεκ-μη-ραν-το.

8 και α-νε-μνη-σθη-σαν της πε-ρι του-του γρα-φης.

9 με-εθ ω-ω-ων και δι ω-ω-ων.

και η-μεις πι-στευ-σαν-τες.

10 α-νυ-μνου-μεν σε τον ζω-ο-δο-την Χρι-στον:-